

REMARKS

Claims 61-80 are pending in the present application. Claims 1-60 have been cancelled and Claims 61-80 have been added. The foregoing amendments are taken in the interest of expediting prosecution and there is no intention of surrendering any range of equivalents to which Applicant would otherwise be entitled in view of the prior art.

In-Person Interview with Examiners Melanie Tyson and Anhtuan Nguyen

Applicants would like to thank Examiners Tyson and Nguyen for the time and courtesy extended to Applicant's Representatives James McPherson and Eric Dobrusin during an in-person Examiner Interview conducted on January 11, 2007. During that Interview, currently presented claims 61 and 80 were discussed along with prior art reference U.S. Patent No. 6,766,186, to Hoyns et al. and to a lesser extent U.S. Patent No. 5,853,366, to Dowlatshahi. Applicants understood from the Interview that currently presented claim 61 would overcome both the '186 patent and the '366 patent. Though Applicant believes that claims would not pose an undue burden upon the examiner to Examine, if the Examiner disagrees and believes restriction is needed, Applicants request the Examiner to contact the undersigned by telephone any restriction in order to expedite prosecution.

Distinction between U.S. Patent No. 6,766,186 and pending claim 61

Also discussed during the Interview was the term "apex", which is currently recited in pending claim 61 and of the clip type illustrated in Figs. 1, 3, 7, 8, 11C, 13A, 13B, 15, 16G, 16I and 16J.¹ Applicants pointed out to the Examiners that the recitation of an apex corresponds to the contact site of the first arc segment and the second arc segment. Applicants further pointed out that this single apex is different than clips having multiple apexes, such as that shown in Fig. 14 of the '186 patent because those apexes are separated by an additional clip member, e.g. an intermediate flattened portion in the relaxed state.

Another feature discussed during the Interview was claim 61 feature which recites that the end portions located on the first end of the clip extend along the clip

¹ Applicants also discussed the apex described in claim 80, which is based upon the clip type illustrated in Figs. 5A, 16E, 16F 16K and 16L.

axis and away from the end portions located at the second end of the clip. One examples of this configuration can be seen in Fig. 16G of the present application. Applicants pointed out that this is different without limitation from then the end portions of the clip shown in Fig. 14 of the '186 patent, because those end portions fold back towards each other and cannot instantaneously engage tissue upon deployment, as with the clip of the present invention. Indeed it was raised the possibility that due to the short radius of the clip of the '186 patent the ends would spring backward before engaging tissue.²

Problem of Prior Art Clips and the Solution of the Present Invention

Radiographic procedures often use marking clips for marking certain portions of the body that are of interest or for further analysis. This is commonly done during Mammography, where clips are inserted in the breast tissue at a point of interest or concern. One particular problem encountered during deployment of a marking clip (and between viewings of the clip with radiographic devices) is the migration of these clips from the point of interest (or insertion) to another location of the breast tissue.

The clip migration problem is well known in the art of radiology. Attached as Exhibit A are nine articles discussing the problem of clip migration during stereotactic breast biopsies. While using these clips, it is common practice to include notation of the amount of initial migration of the clip during deployment and notation of the amount of total migration between radiographic viewings. As can be imagined, this leaves the radiographic technician with the problem of guessing where the original point of interest exists.

Attempts have been made to correct the migration problem of marking clip. One example is shown in the '366 patent where a "V-shape" clip is provided. However, this configuration is ineffective because the point of the V-shape configuration acts to guide the clip through the breast tissue. Another example is shown in the '186 patent where an elongated clip having two barb portions is provided. This clip is also ineffective to prevent clip migration because the ends of the barb portions curl back towards each other which prevents the clip from engaging the tissue during

² Applicants note that the dimensions described with the clip of Figs. 9 and 10, which appear to be the basis for Fig. 14, teach the barb portion appearing to be insufficient in length to effectively engage the surrounding tissue. This is because the ends travel a very short distance and springs back upon itself. See col. 5, lines 46-61.

deployment. Furthermore, during movement of the clip (or applied force thereto) only the back ends of the clip are designed to resist movement of the clip, which at best comprises a slight scraping resistance against the surrounding tissue.

The present invention seeks to improve on these and other prior art clips by providing a clip designed so that it rapidly engages the tissue upon deployment and provides improved resistance to clip movement. For example, with reference to currently pending claim 61 and one of the non-limiting examples shown in Fig. 16G, the clip includes a first end that engages tissue upon immediate deployment through the resiliency, improved unfolding strength and orientation of the ends of the clip after deployment. Also, during applied force against the clip, in the direction along the clip axis, the ends of the clip act to further engage the surrounding tissue thereby resisting movement of the clip. This resistance is an improvement over the scraping configuration of prior art clips because as the clip moves along the axis, the ends of the clip are pressed further against the surrounding tissue causing further engagement of the ends with the tissue.

In short, the invention as now claimed is believed to be patentable. Withdrawal of rejections and allowance of the claims is respectfully requested.

CONCLUSIONS

In view of Applicants' remarks, the Examiner's previously presented rejections are believed to be rendered moot. Accordingly, Applicants submit that the present application is in condition for allowance and requests that the Examiner pass the case to issue at the earliest convenience. Should the Examiner have any question or wish to further discuss this application, Applicant requests that the Examiner contact the undersigned at (248) 292-2920.

If for some reason Applicants have not requested a sufficient extension and/or have not paid a sufficient fee for this response and/or for the extension necessary to prevent the abandonment of this application, please consider this as a request for an extension for the required time period and/or authorization to charge Deposit Account No. 50-1097 for any fee which may be due.

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